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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,257	03/16/2004	William J. Borland	EL0535USNA	2248

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E I DU PONT DE NEMOURS AND COMPANY  
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EXAMINER
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HA, NGUYEN T

ART UNIT	PAPER NUMBER
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2831

NOTIFICATION DATE	DELIVERY MODE
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03/03/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-Legal.PRC@usa.dupont.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/801,257	<b>Applicant(s)</b> BORLAND ET AL.	
	<b>Examiner</b> NGUYEN T. HA	<b>Art Unit</b> 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>0704 &amp; 0406</u>   | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7 and 22-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US 6,910,266).

Regarding claim 1, Lee et al disclose a fired thick-film dielectric on copper foil (105a to 105d), wherein the dielectric exhibits barium titanate (104a to 104d) grain sizes of at least 0.5 microns (column 10, lines 17-21).

Regarding claim 2, Lee et al. disclose the dielectric has a thickness in the range of 10 to 60 microns (column 12, lines 32-41).

Regarding claim 3, Lee et al. disclose an underprint layer (103) disposed between the dielectric and the copper foil.

Regarding claim 4, it is inherent that the Lee et al. disclose the Curie point of the dielectric is in the range of -35 to 45 °C.

Regarding claim 5, Lee et al. disclose the dielectric comprises barium titanate

Regarding claim 6, Lee et al. disclose a capacitor comprising:

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- the thick-film dielectric (104a to 104d) on copper foil, wherein the copper forms a first electrode (105a to 105d), and
- a second electrode (102a to 102d) disposed over the dielectric.

Regarding claim 7, Lee et al. disclose the second electrode comprises copper, cuprous oxide, and lead germinate.

Regarding claim 22, Lee et al. disclose interlayer panel comprising the capacitor (figure 6)

Regarding claim 23, Lee et al. disclose a printed wiring board comprising the interlayer panel (figure 6).

Claims 8-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakabe et al. (US 4,764,494).

Regarding claim 8, Sakabe et al. disclose a dielectric powder, comprising:

- barium titanate powder (column 2, lines 45-46);
- a lithium source and at least one metal fluoride powder (column 2, lines 45-47), wherein the metal fluoride powder includes a zinc fluoride powder (column 3, lines 1-10); and
- lead germanate glass powder (column 3, lines 37-52).

Regarding claim 9, Sakabe et al. disclose the dielectric powder comprises 73-88% by weight of the barium titanate powder (column 2, lines 45-46).

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Regarding claim 10, Sakabe et al. disclose the dielectric powder comprises 1-5% by weight of a combination of the lithium source and the at least one metal fluoride powder (column 2, lines 45-47).

Regarding claim 11, Sakabe et al. disclose the lithium source comprises at least one of lithium carbonate and lithium fluoride (column 3 lines 1-10).

Regarding claim 12, Sakabe et al. disclose the dielectric powder comprises 8-25% by weight of the lead germinate glass powder (column 3, lines 59-66).

Regarding claim 13, Sakabe et al. further disclose glass powder comprising at least one of barium, strontium, calcium, zinc, magnesium and manganese (column 3 lines 33-65).

Regarding claim 14, Sakabe et al. further disclose glass powder comprising at least one of silicon, zirconium, titanium and tin (column 3, lines 33-65).

Regarding claim 15, Sakabe et al. further comprising zirconia powder in an amount that is between 1/25 and 1/3 of the weight of the lead germanate glass powder (column 5, lines 50-57).

Regarding claim 16, Sakabe et al. disclose a screen-printing composition comprising:

- the dielectric powder composition dispersed in an organic vehicle, and a solvent (abstract).

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakabe et al. (US 4,764,494) in view of Lee et al. (US 6,910,266).

Regarding claim 17, the teaching of Lee et al. in the above in view of Sakabe et al. disclose a method of making a capacitor comprising:

- providing a metallic foil (105a to 105d);
- forming a dielectric (104a to 104d) over the metallic foil using the dielectric powder
- forming an electrode (102a to 102d) over the dielectric.

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Regarding claim 18, the teaching of Sakabe et al. in view of Lee et al. disclose the dielectric and the electrode are formed by a single firing step in a nitrogen environment.

Regarding claim 19, the teaching of Sakabe et al. disclose the foil is a copper foil.

Regarding claim 20, the teaching of Lee in view of Sakabe et al. disclose the dielectric has a thickness in the range of 10 to 60 microns, and the Curie point of the dielectric is in the range of -35 to 45 °C.

Regarding claim 21, the teaching of Lee et al. in view of Sakabe et al. disclose the electrode is formed from a powder comprising:

- copper powder (105);
- cuprous oxide powder; and
- lead germinate glass powder.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGUYEN T. HA whose telephone number is (571)272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nguyen T Ha/  
Primary Examiner, Art Unit 2831